



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

LIX. Astronomical Observations made at the Island of Barbados ; at Willoughby Fort ; and at the Observatory on Constitution Hill, both adjoining to Bridge Town. By Nevil Maskelyne, A. M. Fellow of Trinity College, Cambridge, and F. R. S.

[Read December 20, 1764.]

N. B. All the observations of the first satellite of Jupiter were made with a two foot reflector made by Mr. Bird, having an aperture of $3\frac{8}{15}$ inches in diameter, except where they are marked as made with my 18 inch reflector made by Mr. Short, having an aperture of four inches and an half in diameter. And the eclipses of the other satellites were all observed with the 18 inch telescope, except a few marked as made with Mr. Bird's two foot reflector. The latitude of Willoughby Fort is $13^{\circ} 5'$ N. and that of the Observatory $13^{\circ} 5' 15''$ N. This agrees with the latitude I observed when our ship came to anchor at our first arrival in Carlisle Bay, which, carefully calculated, and reduced to St. Michael's Church, gives $13^{\circ} 5' 30''$ for its latitude. The Observatory is about 200 yards due east of the church, and Willoughby Fort is about 1600 feet distant from the same, bearing S. W. So that the Observatory is about $15''$ of longitude, or $1''$ of time to the east of Willoughby Fort. The latitudes of Willoughby Fort and the Observatory, set down above, result from altitudes of the sun taken with a basin of quick-silver by the brass Hadley's sextant made by Mr. Bird, being calculated from them, and the apparent time known from equal altitudes of the sun taken with the equal altitude instrument.

At

App^t Time.

| | | | |
|------|--------------|---|---|
| 1763 | | | At WILLOUGHBY FORT. |
| Nov. | H | “ | |
| ○ 13 | 15 5 38 | | Immersion of 1 st Satellite of Jupiter. |
| ♀ 18 | 5 44 41 | | { ○ set totally, or his upper limb set in the sea, height of my eye above the sea about 10 foot. |
| ○ 20 | { 13 21 15: | | Imm. 2 Sat. of Jupiter. Air hazy and moon-shine. |
| | { 16 57 20: | | Imm. 1 Sat. of Jupiter through thin clouds. |
| ♂ 22 | 11 26 6 | | Imm. 1 Sat. of Jupiter. |
| ♀ 24 | 13 52 29 | | { Emerision of ♀ Cancri four magn. from the moon's dark limb, dubious to 5", by taking my eye off the telescope for 10". |
| Dec. | | | |
| ♀ 1. | 7 46 0:: | | { Imm. 1 Sat. of Jupit. 18 inch telescope, magnifies 170. Air hazy; yet the satellite was separate from the body of Jupiter. |
| ♂ 6 | { 12 10 45 | | Emers. 3 Sat. of Jupit. 18 inch magnifies, 170. |
| | { 17 21 4:: | | Emers. 1 Sat. of Jupit. low towards the horizon. 18 inch telescope. |
| ♀ 8 | { 10 24 55 | | Emers. 2 Sat. of Jupit. } 18 inch { Sat. at a sensible. |
| | { 11 46 35 | | Emers. 1 Sat. of Jupit. } mag. 170 { Sat. at a very sensible distance from Jupiter's body. |
| ♀ 15 | { 12 59 46 | | Emers. 2 Sat. of Jupiter. |
| | { 13 37 9 | | Emers. 1 Sat. of Jupiter. |
| ♂ 17 | 8 5 46: | | Emers. 1 Sat. of Jupiter. Air hazy. |
| ♀ 21 | 14 12 0 | | { A small telescopic star preceded Jupiter's centre 1.' 34" in right ascension, and was 7" N. of the same in declination. |
| ♀ 22 | { 15 28 35 | | Emers. 1 Sat. of Jupiter. |
| | { 15 35 35:: | | { Emers. 2 Sat. of Jupiter. 2 foot telescope. Almost touched the 1 Sat. at the emersion. |
| ♂ 24 | 9 56 20 | | Emers. 1 Sat. of Jupiter. |

1764
Jan.

| | | |
|------|------------|--|
| | | At the OBSERVATORY. |
| h 7 | 13 39 43: | { Emers. of 1 Sat. of Jupiter. Air a little hazy, but Jupiter sufficiently bright. |
| | 8 7 20 | Emers. 1 Sat. of Jupiter. |
| ○ 9 | { 8 31 18 | { A telescopic star (inserted in Senex's map of the Zodiac) in the line of the moon's horns produced, and $\frac{1}{2}$ a minute distant from moon's south horn. |
| | { 10 2 8 | Emers. of 2 Sat. of Jupiter. |
| ○ 16 | { 9 59 38 | Emers. of 1 Sat. of Jupiter. |
| | { 12 37 59 | Emers. of 2 Sat. of Jupiter. |
| ♀ 18 | { 9 47 46 | Imm. of 3 Sat. of Jupiter. |
| | { 12 0 13 | Emers. of 3 Sat. of Jupiter. |

| | | App ^t Time |
|--------------|---------------------------------|---|
| 1764 | | |
| Jan. | H | " |
| h 21 | { 10 59 28 11 23 18 | x Leonis (which was occulted by the ♁ this night in Europe) precedes ♁'s subsequent limb in right ascension by the parallactic wires of my 18 inch telescope. } 2. 8. 30 2. 17. 46 |
| D 23 | 11 52 36 | Emers. of 1 Sat. of Jupiter. Emerg'd instantaneously. |
| ♀ 25 | 6 20 51 | { Emers. of 1 Sat. of Jupiter. A good observation; though only 40' after sun set, sufficiently dark. |
| Feb. | | |
| ♀ 8 | { 9 43 24 10 9 19 | { A star 6.7 magn. in Aries, in line of ♁'s horns, produced 1' S. of ♁'s south horn. Certain to 10". |
| ♀ 17 | 8 24 39 | Emers. of 1 Sat. of Jupiter. |
| ♦ 20 | { 11 50 32 12 7 6 15 7 37 | { Occultation of ♀ Leonis 6 magn. by ♁'s bright limb, certain to 5". Full moon this day. The Virgin's spike precedes ♁'s subsequent limb } 1° 51' 11" in right ascension by parallactic wires. } 1 57 33 Ditto by transit instrument upon the meridian 2 55 28 N. B. The Virgin's spike was occulted by the ♁ this night in Europe. |
| 24 23 | { 7 54 8 7 54 44 8 5 3 | { Internal contact of one of Jupiter's satellites, with his east limb at its entrance upon his body. Sat. disappears. Suppose it has been visible 36" upon his body. |
| ♀ 24 | { 13 48 46 8 30 42 | Emers. of 3 Sat. of Jupiter. Antares follows ♁'s subsequent limb in right ascension } 8. 10." by parallactic wires of 18 inch telescope. Emers. of 1 Sat. of Jupiter. |
| March | | |
| ♂ 6 | 7 5 12 | Emers. of 2 Sat. of Jupiter. Air very clear. |
| ♀ 8 | 7 2 43 | Emers. of ♀ Pleiadum from the ♁'s bright limb, certain to 10". |
| h 10 | { 7 21 46 9 24 49 | β Tauri, 2 magn. precedes ♁'s preceding limb in } 1.° 55' 28" right ascension by parallactic wires. } 2 41 26 |
| ♦ 12 | { 9 49 22 1/2 11 9 15 | Occultation of ν Gemini 5 magn. by ♁'s dark limb. |
| ♂ 13 | { 7 56 7 9 13 29 | Emers. of ditto from ♁'s bright limb, certain to 10". |
| ♀ 16 | 11 17 18 | Occultation of 2 ν Cancer by ♁'s dark limb. |
| h 17 | { 6 41 28 7 26 11 | Occultation of 3 ν Cancer by ♁'s dark limb. |
| Eclipse of ♁ | { 7 36 29 9 26 50 | Occultation of σ Leonis 4.5 magn. by ♁'s dark limb. Beginning of the eclipse of the ♁. Shadow at middle of Mount Ætna. Shadow of the middle of Mount Hercules. End of the eclipse. |

N. B. I observed the beginning and end with an opera glass of Dollond's construction.

App^t

| | | App ^t Time |
|-------|-----------------------|---|
| 1764 | April | H " |
| ♀ 6 | 8 28 11 | Emerg. of 3 Sat. of Jupiter. |
| | 8 33 30 | 3 Sat. arrived to its greatest brightness. |
| ♀ 13 | { 13 2 32 13 48 48 | Imm. of β Virginis into ♈'s dark limb. Emerg. of ditto from ♈'s bright limb, certain to 10". |
| ○ 15 | 7 19 17 | The Virgin's spike precedes ♈'s preceding limb in } 49.' 43." right ascension by parallactic wires. |
| | | N. B. It was occulted this night in Europe. |
| May | | |
| 24 10 | 7 7 47 | Imm. of σ Leonis 4.5 magn. into ♈'s dark limb. |
| June | | |
| ♀ 6 | { 7 41 4 8 53 33 | Imm. of χ Leonis 4.5 magn. into ♈'s dark limb. Emerg. of ditto from ♈'s bright limb. Certain to 5". |
| 24 14 | 11 13 14 | τ Sagittarii 4 magn. precedes ♈'s subsequent } 1° 8.' 46" limb in right ascension by parallactic wires. |
| July | | |
| ○ 9 | { 9 51 56 13 22 27 | Antares follows ♈'s preceding limb in right ascen- } 3° 8.' 48" sion by parallactic wires. } 1 32 0 |
| 24 12 | { 8 39 11 10 31 23 | τ Sagittarii 4 magn. prec. ♈'s prec. limb in right } 6 21 33 ascension by parallactic wires. } 7 9 19 |
| Aug. | | |
| ○ 5 | 9 1 28 | Occultation of π Scorpii 3 magn. by ♈'s dark limb. |
| ♀ 10 | { 7 41 43 | Occultation of χ Capricorni 6 magn. by ♈'s dark limb, but which was so near to being full, that the star seemed to va- nish in the illuminated arch terminating light and darkness. |

Besides the above observations, I have taken a great many of the difference of right ascension between the ♈'s enlightened limb and proper stars (which I have not yet reduced) by means of parallactic wires in the focus of my 18 inch reflecting telescope; from which, after making the requisite calculations, I make no doubt of being able to deduce the moon's horizontal parallax in that latitude, and thence, by proportion, the equatorial parallax of the moon with great exactness, which has never been done yet in so direct a manner.